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Affective, Cognitive, and Behavioral Differences Between High and Low Procrastinators

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We examined the relation between academic procrastination and academically related trait measures. Subjects were assessed three times on state measures when midterm exams approached. Results indicated that more than 40% of the students reported a high level of procrastination. Self-reported procrastination was positively correlated with delay in taking self-paced quizzes, and was negatively correlated with grade point average. High procrastinators, particularly women, were significantly more likely than were low procrastinators to report more test anxiety, weekly state anxiety, and weekly anxiety-related physical symptoms. High procrastinators were significantly more likely than were low procrastinators to attribute success on exams to external and unstable factors. As the exam deadline approached, both high and low procrastinators perceived exams to be less difficult, less important, and less anxiety provoking; reported fewer factors to hinder study behavior; increased their study behavior; and decreased delay. Implications for anxiety reduction as a procrastination intervention are discussed.

Delaying on academic tasks to the point of experiencing anxiety is a common practice among college students (Burka & Yuen, 1983). For research purposes, academic procrastination has been defined as the self-reported tendency (a) to nearly always or always put off academic tasks, and (b) to nearly always or always experience problematic levels of anxiety associated with this procrastination (Rothblum, Beswick, & Mann, 1984). Thus, self-reported procrastination constitutes more than a reasonable length of time to complete a task, but must include both frequent delay and considerable anxiety.

Previous research (Solomon & Rothblum, 1984) indicated that nearly one fourth of all college students reported problems with procrastination on such academic tasks as writing term papers, studying for exams, and keeping up with weekly readings. Furthermore, there was a significant positive correlation between self-reported procrastination and a variety of clinical factors such as depression, trait anxiety, and irrational cognitions, and a significant negative correlation between procrastination and self-esteem. These findings suggest that procrastination is more than a study-skills deficit, but includes cognitive and affective components.

One purpose of the present study was to investigate the relation of academic procrastination with academically related trait measures, in contrast to the clinical trait measures mentioned earlier. Because academic procrastination inconveniences a large percentage of students, it is important to assess which traits affecting academic performance might be similarly involved. Further knowledge of academically related trait measures is also important in conceptualizing interventions for academic procrastination. It is unlikely that the large numbers of students adversely affected by procrastination need clinical intervention (e.g., therapy for depression), but it is likely that they may have related academic problems (e.g., test anxiety) that need to be addressed in counseling. Thus, the present study examined the relation of procrastination with an affective, cognitive, and behavioral measure, respectively. First, test anxiety was included because of the salience of anxiety as a factor hindering study behavior in previous research (Solomon & Rothblum, 1984) and because anxiety specifically related to academic exams was presumed to have high correlations with academic delay. Second, we included an attribution measure that assesses students' attributions of success and failure on exams. Because procrastinators usually complete assignments at the last moment, they may be less likely than nonprocrastinators to attribute their performance to effort or ability (internal attributions), but instead they may be more likely to attribute performance to luck or situational factors (external attributions). Finally, a measure of self-control was included in order to assess students' reports of their abilities to motivate themselves and to complete tasks on their own.

Solomon and Rothblum (1984) assessed procrastination at only one point in time. Presumably, students' level of procrastination fluctuates over time as deadlines approach. There is evidence that high procrastinators may be motivated to decrease delay only when their anxiety and worry reach peak levels (Solomon, Murakami, Greenberger, & Rothblum, 1983). It is important to assess academic procrastination at various time intervals surrounding an approaching deadline in order to examine the optimal intervention period. Thus, a second purpose of the present study was to examine procrastination as a process over time in order to detect differences between high and low pro-

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crastinators as a deadline approaches. Students were assessed at weekly intervals during the midterm exam period of the semester. The weekly questionnaires again assessed affective, cognitive, and behavioral components hypothesized to be related to procrastination. Thus, students were assessed each week on (a) affective variables (state anxiety and anxiety-related physical symptoms), (b) cognitive variables (appraisal of the importance and difficulty of midterms and the factors that may hinder effective study), and (c) behavioral variables (weekly procrastination and amount of study behavior).

A separate issue but one that is related to the frequency of procrastination is the reason why students procrastinate. Solomon and Rothblum (1984) found that *fear of failure* accounted for 49% of the variance in a factor analysis of reasons why students procrastinate (regardless of their level of procrastination). Of students in that study, 14% endorsed at least one of the five items on the fear-of-failure factor as definitely reflecting why they procrastinated. This factor consisted of evaluation anxiety (fear of negative evaluation from others), perfectionism (overly high internal standards of performance), and low self-esteem. There was a significant positive correlation between fear of failure as an antecedent of procrastination and trait anxiety. A second factor that accounted for 18% of the variance of academic procrastination was termed *task aversiveness*. Items in this factor tapped lack of energy and unpleasantness of the task. Of students in that study 47% endorsed at least one of these items as definitely reflecting why they procrastinated. Task aversiveness did not correlate significantly with trait anxiety. Given the salience of both fear of failure and task aversiveness as reasons for procrastination, our purpose was to further investigate the differences between high and low procrastinators on these measures. To examine how students' reasons for procrastination might fluctuate over time, the list of reasons for procrastination from Solomon and Rothblum's study were converted into a list of weekly hindering factors, or self-reported reasons why the student had not been able to study effectively during the past week.

Finally, it could be argued that our way of assessing academic procrastination; academically related traits; and weekly affect, cognitions, and behavior are all based on subjects' self-reports rather than on actual behavior. In fact, self-reported procrastination has been validated against delay in taking self-paced quizzes (Solomon & Rothblum, 1984), delay in submitting course assignments (Rothblum, Beswick, & Mann, 1984), delay in participation in psychology experiments (Solomon & Rothblum, 1984), and lower course grades (Rothblum, Beswick, & Mann, 1984). To further confirm the validity of self-reported procrastination, we obtained the following records: a behavioral measure of delay (at what point in the semester subjects completed self-paced quizzes for their introductory psychology course), and a behavioral measure of academic performance (subjects' grade point average for the semester). Our hypothesis was that self-reported procrastination would correlate positively with behavioral delay and negatively with academic performance.

In sum, the purposes of the present study were (a) to compare academic procrastination with psychological trait measures more specifically related to academic tasks, (b) to assess procrastination over time as a deadline approaches, (c) to assess the reasons for procrastination over time, in the form of hindering factors that impede effective study on a weekly basis, and (d) to further validate self-reported procrastination by correlating it with behavioral measures of delay and academic performance. Thus, the present study was designed to identify not only variables that need to be addressed when one counsels students who are problem procrastinators, but to identify the most effective time for such counseling.

Method

Subjects

Subjects were 379 university students enrolled in introductory psychology in the fall of 1984, who expressed willingness to participate in three 1-hour experimental sessions for extra course credit. The sample included 261 women and 117 men (1 subject did not fill in gender on the computerized answer sheet). Eighty-five percent were freshmen, 10% were sophomores, and the remaining 5% were juniors and seniors. Of the subjects, 89% were 18 to 21 years of age.

Of these 379 subjects 126 (33%) who met the following criteria participated in the weekly assessment sessions: they had no midterm exams scheduled during the week of the first or second experimental session, and they had at least one midterm exam scheduled during the week of the third experimental session. All of the subjects who met these two criteria were selected to participate. This sample consisted of 91 women and 34 men (1 subject did not specify gender on the computerized answer forms).

Self-Report Measures

The Procrastination Assessment Scale–Students (PASS; Solomon & Rothblum, 1984) was administered to classify subjects as high versus low procrastinators. This scale consists of two parts, assessing (a) frequency of procrastination and the degree to which procrastination results in problematic anxiety, and (b) cognitive–behavioral reasons for procrastination. The two items used from the PASS to classify subjects as procrastinators in the present study were frequency of procrastination on studying for exams and the degree to which this procrastination created anxiety.[1] The items are scored on 5-point Likert scales, with a high score reflecting high procrastination. The two items were summed to provide a total score (from 2 to 10) of anxiety-related exam procrastination. Students who reported on the PASS that they *nearly always* or *always* procrastinated on studying for exams and that such procrastination *nearly always* or *always* made them feel anxious, were considered high self-reported procrastinators. That is, students who were defined as high procrastinators had a total score ranging from 8 to 10 on these items. All of the other subjects (with scores ranging from 2 to 7) were considered low procrastinators. Thus, low procrastinators were those who self-reported that procrastination and anxiety related to procrastination were *infrequent* or *occasional*.

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[1] In previous research (Solomon & Rothblum, 1984), the second item was worded as the degree to which procrastination constitutes a *problem* rather than the degree to which procrastination creates *anxiety*. However, the two wordings are highly intercorrelated; a study in Australia (Rothblum, Beswick, & Mann, 1984) found the correlation between the different wordings to be 0.89, $p <$ .001.

Self-report measures that assess affect are described first, followed by cognitive and behavioral measures, respectively. For each of these three categories, the trait measure is described first, followed by the state measures.

Affective measures. The Test Anxiety Scale (Sarason, 1972) was selected as a trait measure of test anxiety. The scale consists of 37 items in true/false format, that are summed to obtain a total score. A high score indicates high test anxiety. This scale correlates highly with other test-anxiety inventories (Paulman & Kennelly, 1984), and has been found to relate to difficulty working under pressure (Paulman & Kennelly, 1984) and to task-debilitating cognitions (Zatz & Chassin, 1983).

Weekly state anxiety was measured by the state version of the Spielberger State–Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1968), which consists of self-ratings of 20 anxiety-related items. Subjects are asked to rate these items on a 4-point Likert scale, according to how they feel at the present moment. The ratings are summed to obtain a total score. A high score reflects high state anxiety. Previous research has found the test–retest reliability of the trait version of the scale to be high (ranging from .73 to .86), whereas test–retest reliability of the state version is low (from .16 to .54), as would be expected with a situational scale (Spielberger et al., 1968). The state version also fluctuates in accord with prior relaxation versus anxiety, and correlates with other state anxiety inventories (Spielberger et al., 1968).

Weekly reported anxiety-related physical symptoms were measured by a scale modified from Fenz (1967). Eight items were selected from the Autonomic Arousal subscale and four items from the Muscle Tension subscale. These 12 items were rated on 5-point Likert scales and summed to obtain a total score. A high score indicated the presence of multiple anxiety-related physical symptoms (such as headaches, dry mouth, and hand shaking) that students reported experiencing at the time of assessment. Previous research with these subscales has found them to have split-half reliability of .83 and .84, respectively; test–retest reliability of .70 and .63, respectively; and significant correlations with anxiety (Fenz, 1967).

Cognitive measures. Russell's (1982) Causal Dimension Scale was modified as a trait measure of attributions of success and failure. The original scale instructs subjects to rate attributions about eight achievement-related scenarios. In the present study, two achievement-related scenarios (one indicating success and one failure) were used. For attributions of success, subjects were asked to think of the last time they did well on a test. This was followed by nine statements, each rated on a 5-point Likert scale. Three of the statements assessed attributions of internality/externality (e.g., "was your performance something that reflects an aspect of yourself versus reflects an aspect of the situation"); three statements assessed attributions of stability (e.g., "was your performance something that is permanent versus temporary"); and three statements assessed attributions of controllability (e.g., "was your performance something intended by you or other people versus unintended by you or other people"). For attributions of failure, subjects were asked to think of the last time they did poorly on a test. The identical nine statements followed. Thus, this entire scale results in six dimensions: internality/externality (a high score reflects high externality), stability/instability (a high score reflects instability), and controllability/uncontrollability (a high score reflects uncontrollability), for success and failure, respectively. Mean scores are obtained for each of the six dimensions. Previous research has found the three dimensions internality/externality, stability, and controllability to constitute separate factors, to be internally consistent ($\alpha = .88$), and to differentiate between success and failure outcomes (Russell, 1982).

Weekly midterm appraisal assessed subjects' perceptions of the importance and difficulty of their midterm exams and the degree to which subjects perceived them to be anxiety provoking. Ratings were given on 5-point Likert scales, and a mean score was obtained for each subject by combining these three items. A high score indicated that midterms were perceived to be extremely important, difficult, and anxiety provoking.

Weekly hindering factors were measured by a scale developed by the authors. Subjects were asked to indicate, on 5-point Likert scales, the degree to which 26 items had hindered or interfered with effective midterm study during the past week. The 26 items corresponded to the reasons for procrastination on the PASS (Solomon & Rothblum, 1984), but were reworded to refer to the past week. For the purposes of the present study, only two subscales were analyzed: Fear of Failure, consisting of five items that reflected evaluation anxiety, perfectionism, and low self-esteem; and Task Aversiveness, consisting of three items that reflected perceived aversiveness of midterm exams and laziness. Separate means were obtained for the items of the two subscales. High scores reflected a high degree of hindrance during the past week attributed to fear of failure or task aversiveness, respectively.

Behavioral measures. The Rosenbaum Self-Control Schedule (Rosenbaum, 1980) was used as a trait measure of self-control. This scale has 35 items that are rated on 4-point Likert scales (ranging from 2 to -2) and that assess individual tendencies to apply self-control to the solution of problems. Self-control strategies include delay of gratification, perceived self-efficacy, and perceived control over emotional reactions. The items are summed for a total score, with a high score reflecting high self-control. Previous research has found this scale to have high internal consistency (alpha coefficients ranging from .78 to .86) and high test–retest reliability ($r = .86$), and to relate to the length of time that subjects can tolerate a noxious stimulus (Rosenbaum, 1980).

The degree to which students procrastinated on studying for midterm exams during the past week and the degree to which this procrastination resulted in anxiety were assessed from weekly procrastination reports. Thus, weekly procrastination was identical to two items from the PASS, except that it assessed procrastination during the past week. A high mean score for these two items indicated high procrastination with corresponding anxiety.

Weekly study behavior assessed the frequency and duration of preparation for midterm exams during the past week and the percentage of studying still left to do (reverse scored). The three items were rated on a 5-point Likert scale, and a mean was obtained. A high score indicated a greater amount of studying.

Measures of Academic Delay and Performance

Self-paced quizzes. Subjects in introductory psychology were required to take 23 self-paced quizzes during the semester. The number of weeks into the semester that subjects took Quiz 10 was adopted as a behavioral measure of delay. Thus, those students who took Quiz 10[2] later in the semester were considered to delay longer than did those who took this quiz earlier in the semester. A frequency distribution indicates that students took Quiz 10 between the 2nd and 15th weeks in a 15-week semester, with a median time of taking Quiz 10 being during the 10th week of the semester (this results in most students taking a large number of quizzes during the last weeks of the semester, yet few students fail to take all 23 quizzes).

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[2] In previous research (Solomon & Rothblum, 1984), the behavioral measure of delay consisted of the number of quizzes that students took during the last one third of the semester. This measure did not discriminate between students who took no quizzes during that period because they had completed all 23 quizzes earlier and those students who took no quizzes even though they were not done with quiz taking. The new behavioral measure resolves this problem.

Grade point average. Students' grade point average for the semester was obtained as a behavioral measure of general academic performance.

Procedure

During an experimental session, subjects completed the PASS, the Test Anxiety Scale, the Causal Dimension Scale, and the Rosenbaum Self-Control Scale. Those subjects selected to participate in the weekly assessment sessions were assessed the week before midterms (Session 1), the week during midterms (Session 2), and the week after midterms (Session 3). Much of the questionnaire data was retrospective, asking subjects to rate their performance during the past week. Thus, subjects were asked to rate the periods 2 weeks before, 1 week before, and the week of midterms, respectively.

Results

Frequency of Self-Reported Academic Procrastination

A total of 154 out of 379 subjects (40.6%) scored high on procrastination, based on the criteria of nearly always or always procrastinating on exams and nearly always or always experiencing anxiety during each procrastination. Assessing frequency of procrastination by gender indicates that 117 out of 261 women (44.8%) and 37 out of 117 men (31.6%) met criteria for high procrastination. All of the other subjects ($n = 224$, 144 women and 80 men) were classified as low procrastinators.

Relation of Academic Procrastination to Quiz Delay and Grade Point Average

Pearson product–moment correlations were performed between self-reported academic procrastination, quiz delay, and grade point average. Self-reported procrastination was positively correlated with delay on self-paced quizzes ($r = .15$, $p < .005$). Thus, subjects who reported that they procrastinated also tended to demonstrate behavioral delay. Self-reported procrastination was negatively correlated with grade point average for the semester ($r = -.22$, $p < .001$). Subjects who reported procrastination performed less well academically than did nonprocrastinators.

Comparison of Academic Procrastination with Affective, Cognitive, and Behavioral Trait Measures

Analyses of variance (ANOVAS) were performed for Self-Reported Procrastination (high vs. low) × Gender, on all trait measures. The means of all effects of these measures are displayed in Table 1. As expected, there were significant differences between high and low procrastinators on the affective measure of test anxiety, with high procrastinators reporting more overall test anxiety, $F(1, 377) = 22.20$, $p < .001$. There was a significant main effect for gender on test anxiety, with women showing greater test anxiety than did men, $F(1, 377) = 6.45$, $p = .01$.

Also as predicted, there were significant differences between high and low procrastinators on the Causal Dimension Scale (Russell, 1982). For attributions of success, this effect occurred for the dimensions of internality/externality and stability, $F(1, 377) = 7.27$, $p < .01$, and $F(1, 377) = 13.17$, $p < .001$, respectively. These effects indicate that high procrastinators attribute their good test performance to more external and temporary factors, whereas low procrastinators attribute success on a test to more internal and stable factors. Contrary to expectations, there were no

Table 1
Means of Academically Related Trait Measures by Level of Procrastination and Gender

	High procrastinators		Low procrastinators	
Measure	Women $n = 117$	Men $n = 37$	Women $n = 144$	Men $n = 80$
Affective				
Test anxiety	23.40	20.35	19.26	17.75
Cognitive				
Attributions of success				
Internal/external	2.07	2.08	1.86	1.89
Stable/unstable	3.04	2.86	2.58	2.77
Controllable/uncontrollable	1.97	2.00	1.86	1.92
Attributions of failure				
Internal/external	3.08	3.23	3.12	3.05
Stable/unstable	3.95	4.06	4.02	3.89
Controllable/uncontrollable	2.62	2.79	2.70	2.65
Behavioral				
Self-control	−10.65	−8.08	−18.73	−14.13

significant differences between high and low procrastinators on any attributions of test failure. There were no significant differences between high and low procrastinators on attributions of controllability for either test success or test failure, and no significant gender differences on any measure of attributions.

Finally, as predicted, high procrastinators scored significantly lower on the behavioral measure of self-control than did low procrastinators, F (1, 377) = 18.00, $p < .001$. Thus, high procrastinators report less self-efficacy, less delay of gratification, and fewer self-statements to overcome emotional reactions. Women scored significantly lower on self-control than did men, F (1, 377) = 5.25, $p < .05$.

Repeated Measures Analyses—Academic Procrastination as a Process Over Time

Repeated measures ANOVAS were performed for Self-Reported Procrastination (high vs. low) × Gender × Session (1, 2, and 3) for the subsample of subjects who were assessed at weekly intervals. Out of 126 subjects in this sample, 65 (51.6%) met criteria for high procrastinators. A frequency count by gender indicates that 54 out of 91 women (57.4%) and 11 out of 34 men (32.4%) met criteria for high procrastination. The remaining 61 subjects (37 women, 23 men, and 1 who did not not specify gender) were considered to be low procrastinators. Means and standard deviations are displayed in Table 2.

Affective measures. A significant main effect for procrastination was observed on the dependent measure, state anxiety, F (1, 121) = 16.54, $p < .001$. High procrastinators were significantly more likely to report weekly state anxiety across sessions than were low procrastinators. There was also a significant interaction of procrastination and gender on weekly state anxiety, $F(1, 121) = 3.79$, $p = .05$. Simple effects indicate that female high procrastinators were significantly more likely to report weekly state anxiety than were female low procrastinators, $t(89) = 2.59$, $p < .05$. However, the means for male high and low procrastinators were almost identical and were nonsignificant.

High procrastinators were also significantly higher on anxiety-related physical symptoms across sessions than were low procrastinators, $F(1, 121) = 10.54$, $p < .005$. As before, there was a significant interaction of procrastination and gender on weekly anxiety-related physical symptoms, $F(1, 121) = 7.94$, $p < .01$. Simple effects indicate that for women, high procrastinators reported more physical symptoms than did low procrastinators, $t(89) = 2.44$, $p < .05$. For men, there was a tendency for high procrastinators to report fewer physical symptoms than did low procrastinators, but this difference was not significant.

Finally, there was a significant three-way interaction of procrastination, gender, and session for weekly anxiety-related physical symptoms, $F(2, 120) = 3.26$, $p < .05$. Female high procrastinators display the highest scores on physical symptoms across sessions. Their scores are particularly high during the first and third sessions and relatively low during the second session. Male high procrastinators display the reverse pattern, with particularly high scores during the second session and relatively low scores during the first and third sessions. Post hoc comparisons indicate that this gender difference is significant for high procrastinators in Session 3, but not for the other sessions. Low procrastinators, whether men or women, show relatively little change in reported physical symptoms across sessions.

Cognitive measures. A significant main effect for session occurred on the weekly midterm appraisal measure, $F(2, 120) = 7.32$, $p = .001$. Post hoc comparisons indicate a significant difference between subjects' scores between each session. Thus, subjects regardless of level of procrastination view their midterm exams as decreasing in difficulty, importance, and the degree to which they provoke anxiety as the exam date approaches.

There was a significant interaction between procrastination and gender on weekly midterm appraisal, $F(1, 121) = 13.15$, $p < .001$. However, simple effects comparing high and low procrastinators of each gender as well as those comparing men and women on each level of procrastination were not significant.

There was a significant three-way interaction between procrastination, gender, and session on weekly midterm appraisal, $F(2, 120) = 4.22$, $p < .05$. Female high and low procrastinators as well as male low procrastinators regarded their midterms as fairly difficult, important, and anxiety provoking. Men who were high procrastinators, on the other hand, were significantly less likely to appraise their midterms in this way as the exam date approached. Post hoc comparisons indicate that male high procrastinators scored significantly lower on weekly midterm appraisal during the second and third sessions compared with all other groups.

The weekly hindering subscale, Fear of Failure, yielded a significant main effect for session, with subjects, regardless of their level of procrastination, tending to view fear of failure as less of a hindering factor during later sessions, $F(2, 120) = 31.68$, $p < .001$. Post hoc comparisons indicate that fear of failure was seen as significantly less obstructive to studying in each progressive session.

There was a significant interaction of procrastination and gender on fear of failure as a hindering factor, $F(1, 121) = 8.50$, $p < .005$; however, simple effects were not significant.

The weekly hindering subscale, Task aversiveness, also revealed a significant main effect for session, $F(2, 120) = 31.65$, $p < .001$. Post hoc comparisons indicated that subjects tended to view task aversiveness as less obstructive to studying during the third session than during earlier sessions. There was a significant interaction of procrastination and gender, $F(1, 121) = 7.57$, $p < .01$; however, once again, simple effects were not significant.

Behavioral measures. It did not surprise us that high procrastinators were significantly more likely to report more weekly procrastination than were low procrastinators, $F(1, 121) = 8.29$, $p = .005$. However, there was a significant main effect for session, indicating that subjects regardless of level of procrastination delayed studying less during later sessions, $F(2, 120) = 33.85$, $p < .001$. Post hoc comparisons indicated that subjects procrastinated significantly less during the third session than during earlier ones. In addi-

Table 2
Academic Procrastination as a Process Over Time: Means and Standard Deviations of State Measures by Level of Procrastination and Gender Across Sessions as Midterm Exams Approach

	High procrastinators[a]			Low procrastinators[b]		
Measure	Session 1	Session 2	Session 3	Session 1	Session 2	Session 3
			Affective			
Weekly state anxiety						
Women						
M	56.85	56.96	55.54	43.35	48.19	46.11
SD	11.94	12.86	14.21	10.35	13.10	12.94
Men						
M	50.73	53.91	47.54	48.70	48.43	50.91
SD	12.01	13.42	20.12	12.09	10.64	10.25
Weekly anxiety-related physical symptoms						
Women						
M	23.11	21.68	25.26	17.30	17.78	16.43
SD	7.56	7.91	11.12	6.16	6.73	7.91
Men						
M	16.91	20.00	17.18	19.35	19.78	21.00
SD	4.91	7.81	6.85	8.28	8.52	9.99
			Cognitive			
Weekly midterm appraisal						
Women						
M	3.91	3.68	3.59	3.69	3.22	3.04
SD	0.80	1.17	1.27	1.03	1.56	1.62
Men						
M	3.54	2.12	2.15	3.88	3.80	3.65
SD	1.30	2.04	2.10	0.61	1.00	0.95
Hindering factor: fear of failure						
Women						
M	2.31	2.01	1.25	1.76	1.55	0.85
SD	1.12	1.08	1.53	0.89	1.03	1.08
Men						
M	1.40	1.18	0.49	1.89	1.78	1.24
SD	0.70	1.34	0.88	0.78	0.89	1.11
Hindering factor: task aversiveness						
Women						
M	2.67	2.78	1.40	1.95	2.00	1.04
SD	1.03	1.30	1.66	1.03	1.31	1.27
Men						
M	2.24	1.54	0.70	2.07	2.25	1.70
SD	1.31	1.66	1.34	0.86	0.89	1.41
			Behavioral			
Weekly procrastination						
Women						
M	3.53	3.45	1.83	2.61	2.57	1.26
SD	1.23	1.28	1.97	1.22	1.52	1.56
Men						
M	3.00	2.18	1.00	2.37	2.76	1.89
SD	1.41	2.18	1.72	0.92	1.03	1.54
Weekly study behavior						
Women						
M	1.40	2.25	2.67	1.62	2.63	3.00
SD	0.78	1.31	1.39	1.06	1.75	1.67
Men						
M	1.61	3.85	3.86	1.45	2.42	2.61
SD	1.51	2.11	2.17	0.57	1.19	1.23

[a] There were 54 female and 11 male high procrastinators in each session.
[b] There were 37 female and 23 male low procrastinators in each session.

tion, there was a significant interaction of procrastination and gender on this measure, $F(1, 121) = 6.63$, $p = .01$. Simple effects indicated that female high procrastinators were more likely than female low procrastinators to report weekly procrastination, $t(89) = 2.17$, $p < .05$. There was no such effect for men.

There was a significant main effect for session on weekly study behavior, with subjects, regardless of level of procrastination, studying more during later sessions, $F(2, 120) = 49.77$, $p < .001$. Post hoc comparisons indicated that there was a significant difference between each session. Finally, there was a significant interaction of procrastination and gender on weekly study behavior, $F(1, 121) = 7.89$, $p < .01$; however, simple effects indicated no significant results.

Discussion

One striking feature of our data is the large number of students adversely affected by procrastination. More than 40% of all subjects reported nearly always or always procrastinating on exams to the point of experiencing considerable anxiety. This percentage, as a reflection of current student stress, is staggering, and the implications for procrastination as an area of concern for university counseling centers is self-evident.

Our data reveal a significant relation between self-reported procrastination on exams and delay behavior, as evidenced by delay in taking self-paced quizzes. Although this correlation was low, the comparisons were between self-reported procrastination on studying for exams in general, and delay in self-paced quizzes in one course. The result confirms previous research on the validity of self-reported procrastination (Rothblum, Beswick, & Mann, 1984; Solomon & Rothblum, 1984). There was also a significant negative correlation between self-reported procrastination and grade point average, indicating that procrastination is related to poorer academic performance. Again, the low correlation may be the result of correlating grade point average at the end of the semester with self-reported procrastination at the beginning of the semester.

Affective, cognitive, and behavioral factors are associated with academic procrastination. High and low procrastinating students differ from each other in each of these domains. For each factor, trait and weekly state measures are discussed together.

Regarding the *affective* measures, both women and high procrastinators report more test anxiety. High procrastinators are also more likely to report weekly state anxiety, and the interaction of gender and procrastination on this measure yields a significant effect for women. Similar results are obtained on the measure assessing weekly anxiety-related physical symptoms. Both high procrastinators in general and female high procrastinators in particular are more likely to report the presence of physical symptoms. Furthermore, a significant three-way interaction of procrastination and gender with session indicated that female high procrastinators reported more anxiety-related physical symptoms during the last session than did male high procrastinators. The absence of a significant main effect for session indicates that anxiety remains fairly stable over time. Thus, low procrastinators do not report much anxiety at any time as midterm exams approach, whereas high procrastinators (particularly women) report stable levels of high anxiety across sessions.

On the *cognitive* trait measure, high procrastinators are more likely to attribute success on exams to more external and fleeting circumstances than are low procrastinators. Solomon and Rothblum's (1984) research indicated a negative correlation between academic procrastination and self-esteem. The results of the present study suggest that this may be due to high procrastinators attributing success to unstable factors rather than to their own ability or effort. In this way, they cannot take credit for success nor validate their own competence. It is interesting that there was no significant effect for procrastination on any attributions of failure (either internality, stability, or controllability). Possibly, some high procrastinators are attributing failure on tests to lack of effort (internal) and others to situational factors (external). In either case, procrastination may protect individuals from a true test of their abilities.

The weekly cognitive measures indicate that high and low procrastinators are affected by negative appraisal and hindering factors before exams. There were significant main effects for session on weekly midterm appraisal, fear of failure as a hindering factor, and task aversiveness as a hindering factor. Thus, during the first session, students view exams as difficult, important, and anxiety provoking; regard fear of negative evaluation, perfectionism, and low self-confidence to hinder effective study; and view the aversiveness of the task to obstruct study behavior. These negative cognitions decrease with each subsequent session. Thus, our results indicate that cognitions of most students (regardless of whether they procrastinate) are greatly affected by the proximity of upcoming exams. These worrisome cognitions decrease once exam deadlines are close and students are presumably studying. However, we should point out that students completed the third set of questionnaires after they had taken their midterm exams. Even though in the instructions subjects were asked about their cognitions just before midterms, the relief of having completed the exams may have distorted their recollections of these cognitions.

Results for the *behavioral* measure, self-control, indicated that high procrastinators and women perceive themselves to have less delay of gratification, lower self-efficacy, and less control over emotional reactions. It is not surprising that high procrastinators also report more weekly procrastination. Again, this effect is particularly true for female high procrastinators.

The weekly behavioral measures indicate that weekly delay and a low frequency of study behavior occur for most students (regardless of whether they report procrastinating). By the third session, students were less likely to delay study and more likely to be studying regularly than during the first session.

In sum, by including measures of actual behavioral delay and records of academic performance, the present study demonstrates that procrastination is associated with negative academic consequences. The results indicate that high procrastinators experience high and stable levels of general anxiety across time, and also have more test anxiety. Thus, the traditional interventions for procrastination through study-skills counseling (e.g., Richards, 1975) or via the introduction of external contingencies (e.g., Green, 1982) may be insufficient. High procrastinators do not differ from low procrastinators in their study behavior or even on negative cognitions nearly as much as they differ on anxiety. Thus, interventions that additionally focus on anxiety reduction seem warranted for procrastinators. The time period of intervention may not be important, given the stability of anxiety over time among high procrastinators.

Furthermore, anxiety is particularly salient for women. The prevalence of test anxiety among women, regardless of their level of procrastination, suggests that many women who are not procrastinators are affected by anxiety. It is also interesting to note that Solomon and Rothblum (1984) found women to report significantly more fear of failure as an antecedent of procrastination. Further understanding of the basis of such anxiety may be necessary in order to counsel women.

Finally, the weekly cognitive and behavioral measures indicate that most students, including low procrastinators, have a low frequency of study behavior in the weeks before exams, are hindered in their study by fear of failure and task aversiveness, and view exams as difficult. For these students, course instructors may consider use of multiple assignments in order to reduce the importance of any one assignment, cognitive restructuring to alter negative cognitions, and clear external deadlines to reduce procrastination among this less anxious population.

References

Burka, J., & Yuen, L. (1983). *Procrastination: Why you do it, what to do about it.* Reading, MA: Addison-Wesley.

Fenz, W. D. (1967). Specificity in somatic response to anxiety. *Perceptual and Motor Skills, 24* 1183–1190.

Green, L. (1982). Minority students' self-control of procrastination. *Journal of Counseling Psychology, 29,* 636–644.

Paulman, R. G., & Kennelly, K. J. (1984). Test anxiety and ineffective test taking: Different names, same construct? *Journal of Educational Psychology, 76,* 279–288.

Richards, C. S. (1975). Behavior modification of studying through study-skills advice and self-control procedures. *Journal of Counseling Psychology, 22,* 431–436.

Rosenbaum, M. (1980). A schedule for assessing self-control behaviors: Preliminary findings. *Behavior Therapy, 11,* 109–121.

Rothblum, E. D., Beswick, G., & Mann, L. (1984). *Psychological antecedents of student procrastination.* Unpublished manuscript, Flinders University of South Australia, Adelaide, Australia.

Russell, D. (1982). The Causal Dimension Scale: A measure of how individuals perceive causes. *Journal of Personality and Social Psychology, 42,* 1137–1145.

Sarason, I. G. (1972). Experimental approaches to test anxiety: Attention and the uses of information. In C. D. Spielberger (Ed.), *Anxiety: Current trends in theory and research: Vol. 2* (pp. 381–403). New York: Academic Press.

Solomon, L. J., Murakami, J., Greenberger, C., & Rothblum, E. D. (1983). *Differences between high and low procrastinators as a deadline approaches: A qualitative study.* Unpublished manuscript, University of Vermont.

Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive–behavioral correlates. *Journal of Counseling Psychology, 31,* 503–509.

Spielberger, C. D., Gorsuch, R. L., & Lushene, R. (1968). *Self-Evaluation Questionnaire.* Palo Alto, CA: Consulting Psychologists Press.

Zatz, S., & Chassin, L. (1983). Cognitions of test-anxious children. *Journal of Consulting and Clinical Psychology, 51,* 526–534.

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